

consideration to this bill. However, my chief desire is that the committee will review the entire problem, which I regard as of paramount importance, so that the Senate may soon consider legislation on the subject, from whatever source.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

EDUCATION IN REVIEW—CRITICAL SHORTAGE OF TECHNICALLY TRAINED AMERICANS IS CAUSING MUCH CONCERN

(By Benjamin Fine)

This country faces a severe shortage of engineers and technically trained personnel. The critical nature of the shortage was emphasized last week by Allen W. Dulles, director of the Central Intelligence Agency. Speaking before the Alumni Federation of Columbia University, Mr. Dulles said that in the decade from 1950 to 1960, the Soviet Union would graduate 1,200,000 scientists and engineers, compared to 900,000 in the United States. And he warned that unless something was done at once, Soviet scientific manpower might well outnumber ours in many key areas.

This month, for example, just about 20,000 engineers will be graduated from American colleges and universities. At the same time, the Soviet Union will graduate more than 55,000. In addition, Russia will graduate far more men in the sub-professional fields of engineering, in the technical areas that are so vital in a technological age.

For a long time we boasted that our engineers had greater technical know-how, and were superior in every way to those coming from the Soviet Union. However, experts who have studied the problem say this is no longer true. The calibre of training received by the Russian engineers is rapidly approaching ours, and in some respects may even surpass it.

CHANGES SINCE THE WAR

What is the cause of the engineer shortage? There is no simple answer. Some educators say that the Government itself is to blame. Soon after World War II, when the veterans began to flood the college campuses, the engineering courses became extremely popular. Back in 1950 about 50,000 men were graduated from the engineering colleges. Government-sponsored reports at that time, said that this was too large a number, that our economy could not absorb them. Many engineers could not find jobs.

Then came Korea, and the frenzied attempt to build up our Defense Establishment in a hurry. We found that we did not have enough engineers or technically trained men to go around. The civilian economy, plus the military needs, absorbed them faster than schools could turn them out.

Other factors entered the picture. The draft took away many potential engineers. The colleges found that it was difficult for them to compete with industry for well-trained faculty members. Somehow, an interest in engineering dipped to a new low, despite the great interest in all things of a technical nature, such as jet planes, atomic weapons, and scientific developments.

TO MEET THE PROBLEM

From the long-range point of view, educators are greatly disturbed at the sharp decline in interest in the sciences by high-school students. Figures issued recently by the United States Office of Education show that proportionately fewer students now take courses in chemistry, physics, science, and mathematics than ever before. More than half the high schools in the country do not even offer chemistry today.

Educators are seriously concerned at the apparent indifference to the engineering and scientific fields shown by college students

and high-school graduates. At recent conferences, some called for this very purpose. They have proposed certain steps that might bring the situation into better balance. Among the most frequently mentioned proposals are these:

The creation of a Reserve Officers Training Corps in the fields of engineering and science. At present the campuses support these corps in the various branches of the Army, in the Navy, and Air Force. It is known that the Pentagon has under consideration an extension of these programs, to include ROTC units devoted to engineering and scientific students. Under this plan, if approved, the military officials would provide financial support to qualified students in the technical fields. The suggested program appears to have considerable merit. Certainly it would aid those who are interested in the scientific fields but, for financial reasons, are unable to continue in this area.

ENGINEERING SCHOLARSHIPS

Scholarships for engineering and scientific students have been frequently suggested. In effect, the State or Federal Government would subsidize potential science or technical students. It is costly to attend engineering schools. MIT, for example, has just announced that its tuition will be increased still further, and will go over the \$1,000 mark. Financial support, it has been argued, should go to liberal arts students as well as those in the fields of science. This question, at the moment, is receiving the thoughtful attention of the educational authorities.

Higher salaries for teachers of science and engineering are essential if the faculties are not to be depleted. Although it is true that higher salaries should go to all teachers generally it is doubly essential in the case of the professors in engineering schools. The competition from industry is so severe that the topnotch men are being drawn off by research groups, the Government and private industry.

More adequate physical facilities are essential. The country needs more engineering laboratories, more scientific equipment, better working conditions for the scientific and engineering students.

AVOIDING THE DRAFT

It is also essential, the educators almost unanimously agree, that a more realistic attitude be taken toward the question of Selective Service. Many complaints have been registered in recent months that scientific and engineering students have been drafted before they have completed their studies. This is particularly true, the educators say, concerning graduate students. They point to men who get halfway through their graduate work in engineering, only to be called into service.

Finally, a better public relations program appears to be badly needed. The educators want their story told to the American public so that greater support will be forthcoming. It is not commonly known that the United States is falling behind the Soviet Union in the training and preparation of able scientists, engineers and technical personnel. The story should be told.

Critical Shortages of Engineers and Scientists

**EXTENSION OF REMARKS
OF**

HON. NORRIS COTTON

OF NEW HAMPSHIRE

IN THE SENATE OF THE UNITED STATES

Monday, June 6, 1955

Mr. COTTON. Mr. President, I ask unanimous consent to have printed in the Appendix of the RECORD an article entitled "Education in Review" by Benjamin Fine, published in the New York Times of June 5, 1955.

The article discusses the severe shortage of engineers and technically trained personnel which faces this country, and points out some of the proposals which have been advanced to improve this vital situation. In inserting this article in the Appendix, I desire to call attention to proposed legislation which I have introduced, S. 980, to provide a system of scholarships for persons of unusual ability in certain sciences, which offers a means for meeting and solving this important problem.

It is my hope that the Committee on Labor and Public Welfare will give early